REMARKS

Applicant has reviewed the Office Action mailed on July 3, 2002 and the references cited therewith. Claims 1-29 are pending in this application.

In The Specification

Objections

The Examiner objected to the specification due to informalities at pages 1 and 7. Specifically, page 1 was objected to because information was missing on related applications. Page 7 was objected to because of a typographical error. Pages 1 and 7 of the specification have been amended to include the missing information on the related applications and correct the typographical error at page 7. Therefore, it is respectfully requested that this objection be withdrawn.

Claims

Claims 10 and 13 have been amended to more clearly set forth aspects of the claimed invention. Such amendments were not made to distinguish the invention over any prior art reference of record and no new matter has been added. The amendments to the claims constitute a *bona fide* attempt by applicants to advance prosecution of the application and obtain allowance of certain claims, and are in no way meant to acquiesce to the substance of the rejections. Support for the amendments can be found throughout the specification.

35 U.S.C. §112 Rejection

The Examiner rejected claim 13 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The Examiner further indicates that there is insufficient antecedent basis for the "frequency translator" limitation in claim 13. Claim 13 has been amended accordingly. Therefore, withdrawal of this rejection is respectfully requested.

35 U.S.C. §103(a) Rejections

The Examiner rejected claims 1, 2-4, 6, 9, 18, 20, 22, and 23 under 35 U.S.C. §103(a) as being unpatentable over Dapper et al. (U.S. Patent No. 6,282,683) in view of Hansen et al. (U.S. Patent No. 5,272,700) and further in view of Vanbuskirk et al. (U.S. Patent No. 5,469,545). Applicant respectfully traverses the rejection.

Claim 1:

Claim 1 is directed to a hybrid fiber/coax network with a head end and at least one optical distribution node coupled to the head end over at least one fiber optic link. The network also includes at least one coaxial cable link that is coupled to the at least one optical distribution node. The at least one optical distribution node receives upstream, digital data from a plurality of modems. The at least one optical distribution node further has a digital return path that includes a laser transmitter coupled to the fiber optic link that transmits the upstream, digital data to the head end, a data concentrator coupled to provide the upstream, digital data to the laser, and, for the at least one coaxial cable link, a frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency and retransmits the signal to the plurality of modems for collision detection and a data interface coupled between frequency translator and the data concentrator that determines whether the upstream, digital data is valid.

None of the references, alone or in combination, teach or suggest the network of claim 1. For example, none of the references, alone or in combination, teach or suggest an optical distribution node that includes

> a frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency and retransmits the signal to the plurality of modems for collision detection.

This language in claim 1 specifically calls for detecting collisions *at the modems* for upstream, digital data transmitted to the optical distribution node from the modems. Dapper and Hansen both purport to show detecting upstream collisions at the head end, not at the modems. *See, e.g.,* Dapper, Col. 63, lines 19-27; Hansen Col. 4, lines 29-33. Further, although Dapper has frequency translators as noted by the Examiner, the frequency translators are not for retransmission of data back to the modems for collision detection.

None of the other references teach or suggest a frequency translator as called for in claim 1. For example, as noted by the Examiner, Hansen appears to describe a technique for monitoring collisions at the modems. Applicant respectfully traverses the Examiner's reading of this portion of Hansen on detecting collisions in upstream data at the modems. Specifically, this procedure in Hansen is designed to detect collisions in the *downstream* traffic (Col. 4, lines 50-57). Absent the blue print provided in Applicant's disclosure, there is no reason (other than hindsight) to apply Hansen's downstream technique to detect collisions in upstream data *at the modems* that generated the original upstream data. There is no motivation in either reference to change the way in which upstream collisions are detected. In fact, Hansen makes a point about the novelty in the way it detects collisions in the upstream. *See, e.g.,* Col. 1, line 64 to Col. 2, line 3.

Applicant further respectfully traverses the Examiner's arguments with respect to the combination of Vanbuskirk with Dapper and Hansen as hindsight reconstruction of the invention. For example, the Examiner states that it is obvious to insert the data interface of Vanbuskirk between the frequency translator and the data concentrator because "it could be coupled" in that position. No motivation was provided. Therefore, the combination of Vanbuskirk with Dapper and Hansen is improper.

Further, none of the references teach or suggest digital transmission between an optical distribution node and a head end in a hybrid fiber/coax network as called for in claim 1.

Therefore, claim 1 is not obvious.

Claims 2-4, 6, 9

Claims 2-4, 6, and 9 depend directly or indirectly from claim 1. Claims 2-4, 6, and 9 thus are likewise patentable.

Claim 18

Claim 18 is directed to an optical distribution node. For each coaxial cable link coupled to the optical distribution node, the optical distribution node includes:

> a frequency translator that receives the upstream, digital data modulated on a first carrier frequency from a plurality of modems and translates the upstream, digital data to a different carrier and retransmits the upstream, digital data to the plurality of modems for collision detection

As with claim 1, the frequency translator is included to direct the upstream signals back to the modems to detect collisions in the upstream. Therefore, for the reasons provided above with respect to claim 1, claim 18 is also not obvious over the art.

Claims 20, 22, and 23

Claims 20, 22, and 23 include the limitations of claim 18 and thus are also allowable.

The Examiner rejected claim 5 under 35 U.S.C. §103(a) as being unpatentable over Dapper et al. (U.S. Patent No. 6,282,683) in view of Hansen et al. (U.S. Patent No. 5,272,700) and Vanbuskirk et al. (U.S. Patent No. 5,469,545) and further in view of Griesing (U.S. Patent No. 4,959,829). Applicant respectfully traverses this rejection.

Claim 5 depends from claim 1. Applicant thus incorporates the arguments applied to claim 1 above to traverse this rejection of claim 5. Applicant asserts that none of the references alone or in combination teach or suggest the network of claim 5 for the reasons provided above with respect to claim 1. Further, Applicant traverses the combination of references provided by the Examiner. The mere number of the references indicates that the Examiner is engaging in improper hindsight reconstruction of the Applicant's invention. There is no teaching or suggestion in the references that justifies the modification of Dapper with three other references to achieve the claimed invention. Therefore the rejection is improper.

The Examiner rejected claim 7 under 35 U.S.C. §103(a) as being unpatentable over Dapper et al. (U.S. Patent No. 6,282,683) in view of Hansen et al. (U.S. Patent No. 5,272,700) and Vanbuskirk et al. (U.S. Patent No. 5,469,545) and further in view of Peyrovian (U.S. Patent No. 5,768,682). Applicant respectfully traverses this rejection.

Claim 7 depends indirectly from claim 1. Applicant thus incorporates the arguments applied to claim 1 above to traverse this rejection of claim 7. Applicant asserts that none of the references alone or in combination teach or suggest the network of claim 7 for the reasons provided above with respect to claim 1. Further, Applicant traverses the combination of references provided by the Examiner. The mere number of the references indicates that the Examiner is engaging in improper hindsight reconstruction of the Applicant's invention. There is no teaching or suggestion in the references that justifies the modification of Dapper with three other references to achieve the claimed invention. Therefore the rejection is improper.

The Examiner rejected claims 8 and 21 under 35 U.S.C. §103(a) as being unpatentable over Dapper et al. (U.S. Patent No. 6,282,683) in view of Hansen et al. (U.S. Patent No. 5,272,700) and Vanbuskirk et al. (U.S. Patent No. 5,469,545) as

applied to claims 1 and 18, and further in view of Beveridge (U.S. Patent No. 5,469,495). Respectfully, Applicant disagrees.

Claim 8 depends from claim 1. Applicant thus incorporates the arguments applied to claim 1 above to traverse this rejection of claim 8. Applicant asserts that none of the references alone or in combination teach or suggest the network of claim 8 for the reasons provided above with respect to claim 1. Further, Applicant traverses the combination of references provided by the Examiner. The mere number of the references indicates that the Examiner is engaging in improper hindsight reconstruction of the Applicant's invention. There is no teaching or suggestion in the references that justifies the modification of Dapper with three other references to achieve the claimed invention. Therefore the rejection is improper.

Claim 21 depends from claim 18. Applicant thus incorporates the arguments applied to claim 18 above to traverse this rejection of claim 21. Applicant asserts that none of the references alone or in combination teach or suggest the network of claim 21 for the reasons provided above with respect to claim 18. Further, Applicant traverses the combination of references provided by the Examiner. The mere number of the references indicates that the Examiner is engaging in improper hindsight reconstruction of the Applicant's invention. There is no teaching or suggestion in the references that justifies the modification of Dapper with three other references to achieve the claimed invention. Therefore the rejection is improper.

The Examiner rejected claim 19 under 35 U.S.C. §103(a) as being unpatentable over Dapper et al. (U.S. Patent No. 6,282,683) in view of Hansen et al. (U.S. Patent No. 5,272,700) and Vanbuskirk et al. (U.S. Patent No. 5,469,545) as applied to claim 18, and further in view of Hutchison et al. (U.S. Patent No. 5,838,989). Respectfully, Applicant disagrees.

Claim 19 depends from claim 18. Applicant thus incorporates the arguments applied to claim 18 above to traverse this rejection of claim 19. Applicant asserts that none of the references alone or in combination teach or suggest the network of claim 19 for the reasons provided above with respect to claim 18. Further, Applicant traverses the combination of references provided by the Examiner. The mere number of the references indicates that the Examiner is engaging in improper hindsight reconstruction of the Applicant's invention. There is no teaching or suggestion in the references that justifies the modification of Dapper with three other references to achieve the claimed invention. Therefore the rejection is improper.

The Examiner rejected claims 10-12, 14, 17, 24, 25, and 29 under 35 U.S.C. §103(a) as being unpatentable over Dapper et al. (U.S. Patent No. 6,282,683) in view of Hansen et al. (U.S. Patent No. 5,272,700). Respectfully, Applicant disagrees.

Claim 10

Claim 10 calls for a hybrid fiber-coax network that includes a head end, at least one optical distribution node coupled to the head end over at least one fiber optic link to provide upstream, digital data to the head end and at least one coaxial cable link, coupled to the at least one optical distribution node, that receives the upstream, digital data from a plurality of modems. At least a portion of the upstream, digital data is transmitted over the at least one coaxial cable link on at least one modulated carrier below a frequency range for downstream transmission and the at least one optical distribution node includes circuitry for retransmitting upstream, digital data back over the at least one coaxial cable link to detect collisions on the at least one coaxial cable link.

As discussed above with respect to claim 1, neither Dapper nor Hansen, alone or in combination, teach or suggest retransmitting upstream, digital data received from a

plurality of modems back to the modems for collision detection. Further, neither of the references, alone or in combination, teach or suggest a digital transmission of upstream data between an optical distribution node and a head end. Therefore, claim 10 is also not obivious.

Claims 11, 12, 14, and 17

Claims 11, 12, 14, and 17 depend directly or indirectly from claim 10. As such, claims 11, 12, 14 and 17 are also allowable.

Claim 24

Claim 24 is directed to a method for processing data in a return path of a hybrid fiber/coax network. The method includes receiving, on a first coaxial cable, upstream, digital data modulated on a first carrier, translating the frequency of the first carrier to a second frequency, and retransmitting the upstream, digital data modulated on the carrier with the second frequency. The method checks for collisions detection signals based on the retransmitted upstream, digital data. The method further concentrates the upstream, digital data with upstream, digital data from other coaxial cables and transmits the concentrated, upstream, digital data to the head end.

None of the references, alone or in combination, teach or suggest the method of processing data in a return path of a hybrid fiber/coax network as called for in claim 24. None of the references, alone or in combination teach or suggest detecting collisions based on retransmitted upstream, digital data. Specifically, Applicant respectfully traverses the Examiner's statements concerning the teachings of Hansen regarding collision detection. As stated above, neither Hansen nor Dapper teach or suggest detecting upstream collisions by retransmitting upstream, digital data. Further, neither of the references, teach nor suggest digital transmission between the optical distribution node and a head end of a hybrid fiber/coax network. Therefore, claim 24 is not obvious.

Claims 25 and 29

Claims 25 and 29 depend from claim 24 and thus are likewise allowable.

The Examiner rejected claims 13 and 27 under 35 U.S.C. §103(a) as being unpatentable over Dapper et al. (U.S. Patent No. 6,282,683) in view of Hansen et al. (U.S. Patent No. 5,272,700) as applied to claims 10 and 24, and further in view of Griesing (U.S. Patent No. 4,959,829). Respectfully, Applicant disagrees.

Claims 13 and 27 depend from claims 10 and 24, respectively. Applicant thus incorporates the arguments applied to claims 10 and 24 above to traverse this rejection of claims 13 and 27. Applicant asserts that none of the references alone or in combination teach or suggest the network of claim 10 and method of claim 24 for the reasons provided above. Further, Applicant traverses the combination of references provided by the Examiner. The mere number of the references indicates that the Examiner is engaging in improper hindsight reconstruction of the Applicant's invention. There is no teaching or suggestion in the references that justifies the modification of Dapper with two other references to achieve the claimed invention. Therefore the rejection is improper.

The Examiner rejected claim 15 under 35 U.S.C. §103(a) as being unpatentable over Dapper et al. (U.S. Patent No. 6,282,683) in view of Hansen et al. (U.S. Patent No. 5,272,700) as applied to claim 10, and further in view of Peyrovian (U.S. Patent No. 5,768,682). Respectfully, Applicant disagrees.

Claim 15 depends from claim 10. Applicant thus incorporates the arguments applied to claim 10 above to traverse this rejection of claims 15. Applicant asserts that none of the references alone or in combination teach or suggest the network of claim 10 for the reasons provided above. Further, Applicant traverses the combination of

references provided by the Examiner. The mere number of the references indicates that the Examiner is engaging in improper hindsight reconstruction of the Applicant's invention. There is no teaching or suggestion in the references that justifies the modification of Dapper with two other references to achieve the claimed invention. Therefore the rejection is improper.

The Examiner rejected claims 16 and 28 under 35 U.S.C. §103(a) as being unpatentable over Dapper et al. (U.S. Patent No. 6,282,683) in view of Hansen et al. (U.S. Patent No. 5,272,700) as applied to claims 10 and 24, and further in view of Beveridge (U.S. Patent No. 5,469,495). Respectfully, Applicant disagrees.

Claims 16 and 28 depend from claims 10 and 24, respectively. Applicant thus incorporates the arguments applied to claims 10 and 24 above to traverse this rejection of claims 16 and 28. Applicant asserts that none of the references alone or in combination teach or suggest the network of claim 10 and method of claim 24 for the reasons provided above. Further, Applicant traverses the combination of references provided by the Examiner. The mere number of the references indicates that the Examiner is engaging in improper hindsight reconstruction of the Applicant's invention. There is no teaching or suggestion in the references that justifies the modification of Dapper with two other references to achieve the claimed invention. Therefore the rejection is improper.

The Examiner rejected claim 26 under 35 U.S.C. §103(a) as being unpatentable over Dapper et al. (U.S. Patent No. 6,282,683) in view of Hansen et al. (U.S. Patent No. 5,272,700) as applied to claim 24, and further in view of Peyrovian (U.S. Patent No. 5,768,682). Respectfully, Applicant disagrees.

Claim 26 depends from claim 24. Applicant thus incorporates the arguments applied to claim 24 above to traverse this rejection of claim 26. Applicant asserts that

none of the references alone or in combination teach or suggest the method of claim 24 for the reasons provided above. Further, Applicant traverses the combination of references provided by the Examiner. The mere number of the references indicates that the Examiner is engaging in improper hindsight reconstruction of the Applicant's invention. There is no teaching or suggestion in the references that justifies the modification of Dapper with two other references to achieve the claimed invention. Therefore the rejection is improper.

Information Disclosure Statement

The Examiner crossed-out references on the 1449 that accompanied Applicant's Information Disclosure Statement filed in the U.S. Patent Office on November 3, 1999. Applicant's Representatives are including a copy of the 1449 form with the references attached thereto. It is respectfully requested that the Examiner consider these references and initial each reference on the Form 1449. Applicant further requests that a copy of the initialed Form 1449 be returned with next official communication. Furthermore, Applicant requests that the 1449 Forms accompanying the Supplemental Information Disclosure Statements filed in the U.S. Patent Office on January 29, 2001, July 3, 2001, October 22, 2001, January 30, 2002 be initialed and returned with next official communication. Finally, Applicant submits herewith a further Supplemental Information Disclosure Statement. It is respectfully requested that the Examiner consider these references and initial each reference on the Form 1449 and return the initialed Form 1449 with next official communication.

CONCLUSION

Claims 1-29 are currently pending. Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly

requested. If the Examiner has any questions or concerns regarding this application, please contact the undersigned at (612) 332-4720, ext. 225.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 502432.

Respectfully submitted,

Date: October 3, 2002

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

First Paragraph of Page 1, starting at Line 6:

U.S. Application Serial No. 09/273,197, entitled "DIGITAL RETURN PATH FOR HYBRID FIBER/COAX NETWORK" and filed on March 19, 1999 (Attorney Docket No. 100.044US01 [500.714US1]) (the "044 [714] Application"), and

U.S. Application Serial No. 09/432,558 [_____], filed on the same date as the present application and entitled "DIGITAL NODE FOR HYBRID FIBER/COAX NETWORK" (Attorney Docket No. 100.120US01 [500.731US1]) (the "120 [731] Application").

The 044 [714]Application and the 120 [731] Application are incorporated by reference.

Fourth Paragraph of Page 7, starting at Line 21:

Node 106 of Figure 1 advantageously combines CSMA/CD error detection through frequency translation ("frequency turn-around") and data concentration. This combination of functionality is shown in Figure 2 [3]. Frequency turn-around is performed at the physical layer as indicated next to blocks 302 and 304. Further, routing functionality, e.g., concentration and switching, is provided at the network layer as indicated by blocks 306 and 308. In this manner, the frequency turn-around scheme does not require modulation or demodulation processes and is kept transparent to the hardware at node 106.

IN THE CLAIMS

10. (Amended) A hybrid fiber-coax network, comprising:

a head end;

at least one optical distribution node coupled to the head end over at least one fiber optic link to provide upstream, digital data to the head end;

at least one coaxial cable link, coupled to the at least one optical distribution node, that receives the upstream, digital data from a plurality of modems;

wherein at least a portion of the upstream, digital data is transmitted over the at least one coaxial cable link on at least one modulated carrier below a frequency range for downstream transmission; and

wherein the at least one optical distribution node includes circuitry for retransmitting upstream, digital data back over the at least one coaxial cable link to detect[ing] collisions on the at least one coaxial cable link.

13. (Amended) The network of claim 10, wherein the plurality of modems transmit collision detection signals on a different modulated carrier when a collision is detected based on signals from a [the] frequency translator.